

The information may be input directly by the advertiser, or by the Advertising Service Company assisting in planning the buy. In addition, a target demographic may also be input in step 214.

The Gross Ratings Points (GRP) for this buy are calculated in step 216. For each site, the number of impressions to be delivered is divided by the total population, with the resulting ratio multiplied by 100. A GRP of 100 means that as many impressions were purchased as there are users to be reached. The sum of the GRP numbers for each site in the campaign yields the total GRP for the campaign. A Target Rating Point (TRP) number is calculated for each site, based on the GRP, multiplied by the percentage of the site's population in the targeted demographic group.

To determine the reach, for each site, as in step 220, the above simulation-derived curves are used to predict the number of users that will receive at least one advertisement. To predict the target reach, the reach is multiplied by the percentage of the site user population believed to be in the targeted demographic. For instance, an advertiser may wish to know the number of people ages 16-24 that will be reached with at least one advertisement each by purchasing 100,000 impressions at a selected site. The demographic data collected at step 204 may show that 40% of the site's users are in this group. The simulated campaign at step 206 shows that a given number of impressions will reach perhaps 20,000 users because of extra ads "consumed" by the more active users. Thus, multiplying these together, the targeted reach will be 8,000 users in the targeted demographic. To determine the effective reach for a pre-determined frequency, the simulated campaign data is used to predict the number of users who received at least the pre-determined number of impressions. This calculation is the same as the reach calculation, except that the effective frequency is a number greater than one.

This is the process for determining the reach numbers for a single site. Because an advertising campaign generally uses multiple sites, step 222 is used to calculate the reach, reach to target, and effective reach of the entire campaign across all selected publisher web sites. In a simple embodiment, the reach figures as calculated in step 220 are summed for all sites,

yielding a campaign reach. Similarly, the targeted reach and effective reach may also be summed. For more accurate campaign reach figures, however, it is preferable to account for duplication among sites, so that a user reached at one site is not doubly counted when he receives another impression at another site. This may be accounted for by the methods discussed above. Another simple alternative approach to account for duplication is to assume that duplication occurs randomly. This is to say that the population of users at each site are presumed randomly drawn from the population at large, so that the proportion of a first sites users who are also users of a second site is that same as the ratio of the second site's population to the population at large. Thus, when two sites each have 10% of the total population, 1% of the population is presumed to be a member of both site's population, yielding a total of only 19% of the population in either of both sites. The formula for this may be expressed as:

$$\text{Combined reach} = 1 - [(1 - \text{ReachA}) \times (1 - \text{ReachB}) \times (1 - \text{ReachC})]$$

Where ReachA, ReachB, and ReachC are the reach percentages for each of the sites.

The above techniques are useful to compare sites that saturate quickly with a given amount of ads because of a relatively small user base. At such sites, the law of diminishing returns dictates that serving enough impressions to reach the least frequent users may result in unproductive duplication of impressions served to the more active users. Large sites, on the other hand, represent more fertile opportunities to reach new users with a given set of impressions, even after many impressions have been served. While it may seem advantageous to use large sites and avoid smaller sites, this is not necessary with the above analysis tools. Thus, the tools allow advertisers to find relatively affordable impressions to be served on smaller sites, with the tools helping to avoid over-saturation of such sites. Moreover, the smaller sites may have particularly distinct demographic characteristics that make them useful to an advertiser with a narrowly focused targeted demographic.

Similarly, the above process allows the distinction not just between different size sites but between sites with different user activity characteristics. Some sites have relatively uniform users surfing patterns, where there is little difference between the more active and less active

users. A site offering weather forecasts is an example of this, since most users arrive to collect essentially the same information. On the other hand, a financial site might have very different types of user surfing patterns, with many users simply visiting for a quick stock quote, but others conducting extensive research. This latter type of site is troublesome for advertisers without the above tools. However, the above process allows planners to determine an appropriate impression level to arrange, which does not cause excessive inefficient saturation, but which does not leave cost effective opportunities unexploited.

While the above is discussed in terms of preferred and alternative embodiments, the invention is not intended to be so limited.